TEXTILE TECHNOLOGY DIGEST

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Abstracts

ORGANIC FIBERS I

Cellulose fiber structure. Contribution to question of connection between tenacity and spiral structure in cellulose fibers. P. H. Hermans. *Kolloid-Z. 108,* Nos. 2 & 3, 180-2 (1944); *in German.*

Model fibers, prepared from regenerated cellulose, which differed in the orientation of their cellulose chains, were studied under identical conditions of stretching and carefully controlled temperature, humidity and load. It was found, in general, that the better the orientation, the lower was the tenacity of the non-twisted threads. The excellent bending endurance of natural, well-oriented cotton fibers was ascribed to their spiral structure rather than to orientation, because the highly-oriented ramie shows certain weaknesses in bending endurance. Freshly prepared isotropic threads were progressively stretched while still swollen. One set of these fibers, both knotted and unknotted, was dried and another set, also both knotted and unknotted, was twisted while the length of the thread was kept constant during torsion. It was found that torsion increased the strength of the knotted threads but had little effect on the tensile strength of the unknotted threads. It was also found that torsion made fibers less brittle. TTD: 8-47

Cellulose fibers. Penetration rate of water and glycerol into cellulose fibers. P. H. Hermans & D. Vermaas. *Kolloid-Z. 109,* No. 1, 5-9 (Oct. 1944); *in German.*

The absorption of water by dried cellulose can easily be observed optically. It penetrates dried cellulose very slowly. In cellulose containing some moisture, the rate of diffusion increases to the 4th or 5th power of the water content already present. Glycerol penetrates cellulose fibers only if fixed amounts of water have previously been absorbed. This penetration can also be observed optically. Completely dried cellulose is practically impenetrable to indifferent liquids. TTD: 8-47

Cellulose fibers. Studies in cellulose system—water. III. P. H. Hermans & D. Vermaas. *Kolloid-Z. 109,* No. 2, 86-90 (Nov. 1944); *in German.*

The optical behavior of cellulose fibers is found to be dependent on its water content. This finding is discussed in connection with the laws of Gladstone and Dale, and Wiener. TTD: 8-47

Molecular structure of fibers. Molecular structure and arrangement of fibers, especially of natural cellulose fibers. E. Franz, F. H. Miller & E. Schiebold. *Kolloid-Z. 108,* Nos. 2 & 3, 233-48 (1944); *in German.*

The technical requirements for textile fibers are summarized. The principal structural possibilities are discussed, and emphasis is placed on the superiority of natural fibers over synthetic fibers because of the morphological superstructure of the former. According to the theory of Franz, Correns and Dolmetsch, regarding the structure of natural cellulose, their macromolecular properties are sufficient explanation for their linear tensile strength, in spite of their subdivision into dermatosomes. A possible connection between the wave length of the thermal heat motion and the dermatosome dimensions is mentioned. Eighty references. TTD: 8-47

Textile fibers. Introduction to textiles. W. G. Byerley. *Textile J. Australia 22,* 110, 112, 114, 116, 118, 120 (Apr. 1947).

A general discussion of the rayons (viscose, cellulose acetate, cuprammonium, and nitrocellulose) is given, including a brief description of the methods of manufacture of each. Modifications have been made in the viscose process to produce a type of rayon for a specific purpose. Some of these various processes are explained. Ramie, jute, and kapok are briefly described, including methods of obtaining the fibers, relative strength, extensibility, and means for converting these fibers into useful products. The microscopic characteristics of each fiber are given. The only mineral fibers which can be so classed are asbestos and glass fiber, the properties and uses of which are briefly discussed.
ELW TTD: 8-47

Les Textiles Artificiels et Synthetiques en France (Artificial and synthetic textiles in France). Bernard Pierre. Société Privée d'Imprimerie et d'Edition, 3 avenue Sully-Prudhomme, Paris; 278 pp.; price 240 fr.

Reviewed in *Chimie et industrie 56,* No. 2, 129 (Aug. 1946). TTD: 8-47

Vegetable fibers I 1

Cotton degradation. Effect of ultraviolet light on cotton cellulose and its influence on subsequent degradation by microorganisms. R. P. Wagner, H. H. Webber & G. H. Siu. *Archiv. Biochem. 12,* 35-50 (Jan. 1947).

The loss of tensile strength of cotton fibers, exposed to the action of ultraviolet light, was measured by the Pressley Index. A reduction in fiber tensile strength of approximately 20% occurred after 4 hrs. exposure to ultraviolet irradiation of an intensity of 1060 mw/cm². Oxygen concentration and humidity had no effect on loss of tensile strength, but Fe and Mn acted as catalysts in the degradation of the fibers. Exposure of cotton fibers to ultraviolet light was found to increase their resistance to attack by certain tropical fungi.

TTD: 8-47

Fiber structure and properties. Research on relationship between the structure and the properties of textile fibers. III. Germano Contola. *Ann. chim. applicata 36,* No. 3 & 4, 82-8 (1946).

Tests were run on cotton, ramie and flax, both raw and bleached, and it was observed that the wet strength of the fibers increased notably after their complete purification. Removal of the unpurified, non-cellulosic material rendered the internal surfaces of the fiber more hydrophilic and increased their tensile strength. Breaking of natural cellulose fibers depends on the rupture of the macromolecules in the micellar fragments which join the crystalline portion of the fibers. These observations are in direct contrast to those previously advanced by Lauer. TTD: 8-47

New fiber. New plastic fiber. Anon. *Textile Age 11,* No. 3, 20, 24 (Mar. 1947).

A new fiber, more elastic than nylon, is reported; perfected by Dr. Chaim Weizmaun. It is extracted from a shrub that grows in Palestine. TTD: 8-47

Syrian milkweed. Possibilities of a favorite floss. Anon. *Silk & Rayon 21,* 264 (Feb. 1947).

Floss, for mixing with other fibers that lack its luster, may be obtained from Syrian milkweed. This plant is very easy to grow and has many possibilities as to the utilization of the plant itself. TTD: 8-47

BEHIND THE DISTAFF. Produced for Fine Cotton Spinners' and Doublers' Assn., Ltd., 6 St. James's Square, Manchester, 2; 109 pp.

Reviewed in *Silk & Rayon 21,* 274 (Feb. 1947).

TTD: 8-47

COTTON INDUSTRY—VENTILATION, TEMPERATURE, USES OF STEAM AND HUMIDIFICATION, AND LIGHTING. Anon. Interim report of Joint Advisory Committee of the Ministry of Labor and National Service (G. P. Barnett, Chairman); Mar. 31, 1947; 16 pp.; price 5d. TTD: 8-47

Animal fibers I 2

Disulfide linkages of wool. Action of sulfites on the cystine disulfide linkages of wool. IV. S. Blackburn, R. Consden & H. Phillips. *Biochem. J. 38,* 25-9 (1944).

The thiol groups produced when wool is treated with $NaHSO_3$ can be methylated by methyl iodide or methyl bromide; the S-cysteinesulfonate groups are unaffected. A similar reaction occurs when wool is treated with $NaHSO_3$ and dimethyl sulfate simultaneously. A technique for the isolation of S-methyl-cysteine from hydrolyzates of S-methylated wools by partition chromatography of the N-acetylated amino acids is described. When the methylated and bisulfited wools are wet, the resistance of the fibers to extension is much less than that of normal wool fibers. TTD: 8-47

Hair and wool. Effect of concentrated acid on hair and wool. Bernard Lustig & Albert A. Kondritzer. *Archiv. Biochem. 6,* 51-6 (Jan. 11, 1945).

A study was made on the effect of concentrated H_2SO_4 on the amino acid composition and solubility in thioglycolic acid of hair and wool. The results follow: (1) Acid group can be introduced into the keratin fibers by treatment with concentrated acids; (2) the treated fiber yields on extraction with alkaline thioglycolate, followed by dialysis, a protein which is soluble at pH 5-6 or higher; (3) treatment with H_2SO_4 does not affect the cystine, histidine or threonine content, causes a slight decrease in serine and phenylalanine, and a marked loss of arginine, tyrosine and tryptophane of the keratins. These results are of interest since acids are used in the carroting of felt and the carbonization of wool. The possibility of preparing neutral, soluble keratins of high molecular weight may be of importance in the preparation of artificial fibers. TTD: 8-47

Kashmir fibers. Origin, characteristics, and uses of Kashmir fibers. A. C. Whitford. *Textile Age 11,* No. 3, 66, 68-9 (Mar. 1947).

The history of the Kashmir goat, from which Kashmir fibers are obtained, is given. As in other animals, as sheep, the Kashmir has 2 types of hair; but in the production of Kashmir cloth the noils are desired and the hair considered waste, while the opposite is true in wool production. Description of the fibers is given with illustrations. TTD: 8-47

Sericulture. Sericulture reported thriving in Bahamas. Anon. *Textile Age 11,* No. 3, 80 (Mar. 1947).

Mulberry trees in the Bahama Islands have been culti-

vated successfully during the past couple of years and have more than the average amount of vitamins and proteins needed by the silk worm. Technical supervision is being given in the care and cultivation of the trees.
TTD: 8-47

Silk. Sericulture from cocoon to knitter. W. E. Whiston, G. H. Heath & Co. *Silk J. Rayon World 23,* No. 274, 49, 50 (Mar. 1947).

A review of sericulture in the Middle East. TTD: 8-47

Wool. British wool developments look to finer fabrics. Henry Phillips, Wool Industries Research Assn. *Textile World 97,* No. 2, 242, 246 (Feb. 1947).

A brief review of the uses and processing of wools.
TTD: 8-47

Wool and silk fibroin. Experiments on methylation and acetylation of wool, silk fibroin, collagen and gelatin. S. Blackburn & H. Phillips. *Biochem. J. 38,* 171-8 (1944).

During the methylation of wool, peptide methylation as well as esterification of the free carboxyl groups take place. When wool is acetylated with acetic anhydride, methylation of free carboxyl groups by either methyl sulfate or methyl halides is restricted. Treatment of wool and silk fibroin with acetic anhydride in methanol leads to N- and O-acetylation, simultaneously with the methylation of free carboxyl groups. TTD: 8-47

Wool felts. Standard SAE grades. Anon. *Machine Design 17,* No. 4, 163-6 (Apr. 1945).

A work sheet covering only those felts standardized by SAE tabulates chemical analyses, properties (*e.g.* breaking strength, coefficient of friction, etc.), and applications. TTD: 8-47

Wool modification. Identification of amino-acids derived from cystine in chemically modified wool. R. Consden, A. H. Gordon & J. P. Martin. *Biochem. J. 40,* 580-2 (1946).

Hydrolyzates of wool, modified in various ways, were tested for the presence of amino acids derived from cystine by means of partition chromatography on paper. Cysteic acid was identified in oxidized samples of wool. The presence of small amounts of lanthionine and cysteic acid was demonstrated in the tips of virgin wool. Descriptions of these methods were given. TTD: 8-47

Wool modification. Action of alkalis on wool. I. W. R. Cuthbertson & H. Phillips. *Biochem. J. 39,* 7-17 (1945).

One half of the total combined cystine of wool is converted by alkaline solutions into combined lanthionine; the remaining half is decomposed by alkaline solutions,

each molecule giving rise to 2 molecules of combined alpha-amino-acrylic acid. Nearly all of the combined cystine is converted into combined lanthionine by treatment with KCN. Examination of the hydrolyzates of the alkali-treated wools showed no evidence of the formation of —SNH— and —CH=N— cross-linkages; the intact alkali-treated wools contain no free aldehydic groups which will combine with *p*-bromohydrazine.
TTD: 8-47

Wool modification. Action of alkalis on wool. II. H. Lindley & H. Phillips. *Biochem. J. 39,* 17-23 (1945).

The combined cystine of wool has been divided into 2 equal fractions; one of which can be converted quantitatively into lanthionine by treatment with alkali, while the other half is decomposed into alpha-amino-acrylic acid. Each of these fractions is further subdivided into 2 subfractions which differ in their rate of reaction with weak alkalis. Unstretched wool fibers and most fibers stretched 30% show almost no difference in their reactivity towards weak alkalis. TTD: 8-47

WOOL TEXTILE INDUSTRY—SPACING OF CERTAIN MACHINERY, PROCESSES SUBSEQUENT TO CARDING. Anon. Interim report of Joint Factory Advisory Committee of the Ministry of Labor and National Service (M. H. Jones, Chairman); Nov. 6, 1946; price 3d. TTD: 8-47

Artificial fibers I 3

Regenerated cellulose fibers. Wet strength of regenerated cellulose fibers. P. H. Hermans. *Kolloid-Z. 108,* Nos. 2 & 3, 177-9 (1944); *in German.*

An explanation is given for the fact that the strength of natural cellulose fibers is increased through wetting, while that of artificial fibers is decreased. Rupturing is caused by a break in the molecular chains in the compound. Consequently, the different behavior of both types of fiber shows that the arrangement of chains in the natural cellulose is more symmetrical than in the artificial cellulose. TTD: 8-47

Composite filaments. Am. Viscose Corp. Brit. P. 579 081. *Textile Mfr. 72,* 664 (Dec. 1946).

Different viscous solutions are introduced simultaneously into a spinneret to obtain composite filaments.
PMS TTD: 8-47

Aging spinning solution. R. H. K. Thomson & W. Sever (to Imperial Chemical Industries, Ltd.). Brit. P. 579 089. *Textile Mfr. 72,* 664 (Dec. 1946).

A stream of colloidal solution is aged by a heating device which is controlled by variations in the viscosity of the fluid. TTD: 8-47

Rayons — I 3 a

High strength rayon. Long search for high strength in man-made fibers. Anon. *Silk & Rayon, 20,* 1162, 1165-7, *21,* 256, 258-60 (Oct. 1946; Feb. 1947).

High strength rayon can be obtained by aligning the long-chain molecules parallel to themselves and the fiber-length axis. The essential features of raw material conversion into high strength rayon are discussed. Acetate rayon of high strength, strongest of cellulosic fibers, may be produced by paying particular attention to acetylation, ripening, stretching, and saponification.
TTD: 8-47

Viscose rayon. Continuous viscose spinning and processing method. Anon. *Silk & Rayon 20,* 1298-9 (Nov. 1946).

A description of the Industrial Rayon Corp.'s method and machinery for spinning and processing viscose.
TTD: 8-47

Viscose spinning. Recent improvements in viscose spinning practice. Anon. *Silk & Rayon 20,* 1357-8, 1360, 1362 (Nov. 1946).

Various surface-active agents have been used in the coagulating bath or viscose spinning solutions to improve spinning conditions and as a method for attaining more uniform diameter and better quality filaments. The surface-active agents of the cation-active type have proved most successful, but the non-ionogenic and anion-active substances have also been used. TTD: 8-47

Wet-spun rayon. C. C. Vanderhooven. Brit. P. 579 064. *Textile Mfr. 72,* 663 (Dec. 1946).

Freshly spun rayon filament in acid cake is unwound at a speed of about 300 meters/min. in a helical path over a series of thread storage, thread advancing devices at which the various aftertreatments including drying are performed in the usual sequence and the thread is finally wound into a package at the rate of approximately 300 meters/min.
PMS TTD: 8-47

Rayon with irregular denier. Am. Viscose Corp. Brit. P. 579 069. *Textile Mfr. 72,* 664 (Dec. 1946).

Apparatus to manufacture rayon filaments of increased denier at regularly spaced intervals consists of a spinneret fed by a pump with a constant volume rate of discharge, with an auxiliary pump driven intermittently by a hydraulic motor to augment the supply to the spinneret.
PMS TTD: 8-47

Bags for explosives. Henry Dreyfus. Can. P. 441 275, May 6, 1947.

A substitute for natural silk for use in bags for explosives is made from fine filaments of regenerated cellulose impregnated with a guanidine salt, such as guanidine metaphosphate or carbonate. Because of the fineness of the filaments in the presence of the impregnant it is capable of ignition without flame or afterglow persisting for more than a few seconds, and without leaving a sticky residue. TTD: 8-47

Viscose process. Paul H. Schlosser & Kenneth R. Gray (to Rayonier, Inc.). Can. P. 441 390, May 13, 1947.

Refined chemical pulp is converted into viscose in the presence of a lauryl methyl piperidinium compound. A concentration of 0.01-0.2% of this substance, based on the weight of the dry pulp, is added at some time before the completion of xanthation. The added substance may be a surface-active quarternary ammonium compound dispersible in a solution of alkali; *i.e.,* a piperidinium compound wherein one of the groups attached to the pentavalent N is an aliphatic hydrocarbon chain of 7-20 C atoms. TTD: 8-47

Staple fiber web. Aaron Schwartz (to Camille Dreyfus). Can. P. 441 963, June 3, 1947.

A web of oriented and parallelized fibers is formed by feeding the loose artificial staple fibers between a pair of spaced, driven endless belts and then subjecting the fibers to the action of an electrostatic field. TTD: 8-47

Cellulose nitrate treatment. Jas. R. Buckley (to Can. Industries, Ltd.). Can. P. 442 207, June 17, 1947.

The viscosity of cellulose nitrate is reduced by heating in an aqueous solution containing an oxidizing agent such as H_2O_2, and an acid such as HNO_3, H_2SO_4, or H_3PO_4. The spent acid from a nitrating bath may be used. TTD: 8-47

Protein fibers — I 3 b

Crimped protein filaments. Robin H. K. Thomson (to Imperial Chemical Industries, Ltd.). Australian P. 124 077, May 1, 1947.

A crimped protein filament is obtained from casein or vegetable globulins by wet stretching at a raised temperature and then treating with formaldehyde, the desired degree of crimp being imparted by withdrawing the tension. (*Cf.* USP 2 421 302, May 27, 1947 (TTD: *4,* 201).) TTD: 8-47

Protein fibers. Edw. T. Cline (to Can. Industries, Ltd.). Can. P. 442 218, June 17, 1947.

See USP 2 409 475, Oct. 15, 1946 (TTD: *3,* 538).
TTD: 8-47

Synthetic fibers — I 4

Nylon. Nylon and other synthetic polymer fibers. A. J.

Hall. *Silk J. Rayon World 23,* No. 274, 42, 45, 47-8, 57 (Mar. 1947).

Developments in producing, spinning, dyeing and finishing nylon are reviewed. TTD: 8-47

Nylon modification. Sulfur modification of nylon and kindred polymers. Anon. *Silk & Rayon 20,* 1369-70, 1373, 1375 (Nov. 1946).

Methods of introducing S molecules as an essential part of polyamides are discussed. This modification has been found to give polyamides much improved properties, such as softness, toughness, and extensibility. They may be used not only in the production of fibers, but also as coating compositions. TTD: 8-47

Hollow filaments. Am. Viscose Corp. Brit. P. 579 183. *Textile Mfr. 72,* 664-5 (Dec. 1946).

Hollow filaments are produced by spinning a solution of a hydrophobic synthetic linear polymer into a coagulating bath.
PMS TTD: 8-47

Tapered filaments. L. Leben (to Imperial Chemical Industries, Ltd.). Brit. P. 579 419. *Textile Mfr. 72,* 665 (Dec. 1946).

Tapered synthetic linear polyamide filaments are made by drawing a uniform, undrawn filament with the tension varying in a controlled cycle. The drawn filaments are treated with formaldehyde and an acidic catalyst and then baked at a temperature between 100 and 150°C.
PMS TTD: 8-47

Nylon type yarn. Edgar W. Spanagel (to Can. Industries, Ltd.). Can. P. 442 211, June 17, 1947.

See USP 2 385 890, Oct. 2, 1945 (TTD: *3,* 8, 114). TTD: 8-47

Polyacrylonitrile. Virgil L. Hansley (to Can. Industries, Ltd.). Can. P. 442 224, June 17, 1947.

See USP 2 404 716, July 23, 1946 (TTD: *3,* 441). TTD: 8-47

Polyacrylonitrile. Ray C. Houtz (to Can. Industries, Ltd.). Can. P. 442 225-7, 442 229, 442 233, June 17, 1947.

See respectively USP 2 404 719, 2 404 722, 2 404 724, 2 404 718, 2 404 727, July 23, 1946 (TTD: *3,* 441). TTD: 8-47

Polyacrylonitrile. Arthur O. Rogers (to Can. Industries, Ltd.). Can. P. 442 228, 442 232, June 17, 1947.

See USP 2 404 715, 2 404 725, July 23, 1946 (TTD: *3,* 441). TTD: 8-47

Polyacrylonitrile. Wm. H. Charch (to Can. Industries, Ltd.). Can. P. 442 230, June 17, 1947.

See USP 2 404 726, July 23, 1946 (TTD: *3,* 441). TTD: 8-47

Polyacrylonitrile. Richard R. Merner (to Can. Industries, Ltd.). Can. P. 442 231, June 17, 1947.

See USP 2 404 723, July 23, 1946 (TTD: *3,* 441). TTD: 8-47

Fiber applications I 5

Tapered bristles. Reuben T. Fields (to E. I. duPont de Nemours & Co.). USP 2 423 182, July 1, 1947.

Tapered bristles are made from undrawn tapered filaments of cold-drawing polymeric materials by subjecting to tension between drawing points spaced at regular intervals and heating the filament between the drawing points at 50-90°C for at least 1 second. The tapered filaments so produced are suitable for cutting into bristles for brushes. TTD: 8-47

Resin-fiber article. Edw. E. Sawyer (to Canal Natl. Bank of Portland & Wm. B. Nulty through Keyes Fiber Co.). Can. P. 441 965, June 3, 1947; USP 2 409 645, Oct. 22, 1946.

A number of loosely felted fibrous preforms having the planar shape of the finished article are formed from aqueous mixtures of fiber and synthetic resin. The ratio of fiber to resin in one mixture is such as to produce predominantly fibrous preforms, and in the other, predominantly resinous preforms. These are superposed alternately and are hardened and integrated by heating under pressure. Sufficient resin is extruded at the exposed edges of the article to provide a continuous, highly resinous covering encasing the edges.
TTD: 8-47

Cellulose sponge. Thos. F. Banigan (to Can. Industries, Ltd.). Can. P. 442 206, June 17, 1947.

The sponge mould is made of sprayed stainless steel with a surface roughness about that of No. 100 carborundum paper. This is charged with a pasty mixture of viscose, jute fiber, and Glauber's salt and then immersed in 15% Na_2SO_4 solution at 95° C for 16 hrs. TTD: 8-47

Fiber processing I 6

Liquid treating filaments. Am. Viscose Corp. Brit. P. 579 005. *Textile Mfr. 72,* 663 (Dec. 1946).

Apparatus for applying liquid to filaments, yarns, etc., comprises 2 discs secured face to face on a common shaft and spaced so small a distance apart as to form a gap of capillary magnitude for receiving a coating medium.

The liquid is fed to the gap and the material to be coated is guided through the gap.
PMS TTD: 8-47

Liquid treating filaments. Internatl. Latex Processes, Ltd. Brit. P. 579 074. *Textile Mfr. 72,* 664 (Dec. 1946).

Apparatus coats a filament with a liquid as the filament passes through a chamber in which the air pressure is reduced.
PMS TTD: 8-47

INORGANIC FIBERS II

Asbestos cement pipes. A. B. Christopher (to Ruberoid Co.). Australian P. 123 976, Apr. 24, 1947.

Asbestos cement pipes are formed by extruding a plastic mixture of cement and asbestos fibers through a dye having a stationary core, the fibers being so controlled by blades that substantially all the fibers run lengthwise of the pipe. TTD: 8-47

Glass fiber insulation. Orval R. Hoeltzel, Wm. S. Saville & John W. Larson (to Consolidated Vultee Aircraft Corp.). Can. P. 442 269, June 17, 1947.

Sound-insulating padding is formed of a loosely matted layer of glass fibers bonded under heat and pressure to an adhesive plastic film. TTD: 8-47

Glass fabrics. Glass fabrics to compete with plastics and leather. Anon. *Silk & Rayon 20,* 1344 (Nov. 1946).

The increased use of glass fiber fabric for upholstery, handbags, wall coverings, and the like is foreseen. TTD: 8-47

Glass fibers. Textile glass fibers. Paul-August Koch. *Kolloid-Z. 108,* Nos. 2 & 3, 225-33 (1944); *in German.*

The diameter of present-day textile glass fibers ranges from 5 to 10 μ, and they have a linear tensile strength of about 40-65 km. Differences in diameter and degree of tensile strength are influenced by the method of preparation. Heating to about 250-300°C and treating with water will cause a decrease in tensile strength. Torsion testing is a good method for determining brittleness. Specific and easily reproducible values are given for the different methods of preparation. TTD: 8-47

Leaching glass fibers. M. E. Nordberg (to Owens-Corning Fiberglas Corp. through A. S. Cave). Australian P. 124 113, May 8, 1947.

The physical characteristics of glass fibers of less than 0.001" diameter and containing not more than 75% silica are improved by leaching in an aqueous solvent, with a pH not more than 7. The fibers, or fabrics, so

treated may then be baked at a temperature sufficient to revitrify the porous fibers but insufficient to cause sintering. TTD: 8-47

FIBER TO YARN III

Mill practices. Eastern Carolina S. T. A. has fall meeting. Anon. *Textile Bull. 71,* No. 6, 40, 42-3, 67-8, 70-3 (Nov. 15, 1946).

A round table discussion on problems of carding, spinning, etc. TTD: 8-47

Mill practices. Carding-spinning meet. Anon. *Textile Industries 111,* No. 1, 70-2, 127 (Jan. 1947).

A round table discussion of Alabama mill men on opening, picking, carding, and spinning problems. TTD: 8-47

Fiber preparation III 1

Carding. Carding techniques are undergoing change. Anon. *Textile World 97,* No. 2, 127, 129, 210 (Feb. 1947).

A review of carding techniques used by Alabama mills. Return air condensers, improvements in cotton opening equipment, compression springs and rolls, metallic clothing, and the like are discussed with accompanying tables. TTD: 8-47

Carding. Developments in carding machinery. H. E. Gartside, Tathams, Ltd. *Wool Record & Textile World 70,* 774 (Oct. 10, 1946).

In a lecture (summarized) mechanical improvements, use of light alloys in machinery, and use of more steel in frames are developments that are noted. TTD: 8-47

Drawing. Modern spinning technique. Anon. *Textile Weekly 38,* 1258, 1260 (Dec. 27, 1946).

The Shaw Controlled Draft Assembly is described in some detail with accompanying illustrations, and operation of the system is given. TTD: 8-47

Cotton picker. Robt. S. Curley (to Saco-Lowell Shops). USP 2 423 928, July 15, 1947.

On a standard cotton picker having an open beater of the Kirschner type or the like, 2 discs are provided at the ends of the beater of a diameter equal to the working diameter of the beater. These discs prevent the axial flow of air from the ends of the beater toward the center. The resulting lap made by the machine is more uniform in weight transversely.
SPH TTD: 8-47

Heilmaun comber nipper cam. L. Lunn. Brit. P. 579 208. *Textile Mfr. 72,* 665 (Dec. 1946).

An improved cam for the nipper knife is so designed as

to ensure better combing of the rear part of the tuft in process.
PMS TTD: 8-47

Fluffed staple fibers. Norma B. Geer & Louis W. Schatz (to Camille Dreyfus). Can. P. 441 412, May 13, 1947.

See USP 2 420 367, May 13, 1947 (TTD: *4*, 207). TTD: 8-47

Drafting apparatus. Wm. A. Hunter & Wm. Rushton (1/3 to Howard & Bullough, Ltd.). Can. P. 441 757, May 27, 1947.

The sliver or ribbon is passed through a V-shaped guide or support, in which the flanking sides are progressively spaced closer together from the point of entry, and the internal walls and base surface of the guides are convex so that the leading tips of the outlying fibers are diverted inward. The guide is chamfered on its upper and lower sides at its exit end. TTD: 8-47

Blends III 2

Rayon blends. Blending rayon staple fiber. Wilson Orr. *Textile Industries 111,* No. 1, 65, 127, 129 (Jan. 1947).

If in blending, a uniform blend with even fiber distribution is not obtained, problems will arise in processing and cross-dyeing. TTD: 8-47

Spinning III 3

Doubled cotton yarns. Doubled yarns. H. Ankers, Duncan Doubling Co. *Textile Weekly 38,* 1076, 1078, 1080, 1082 (Dec. 6, 1946).

Cop winding, doubling, and other processes in making doubled cotton yarns are reviewed with recent developments and uses of the doubled yarns given. TTD: 8-47

Spinning. Spinning refinements favored by Alabama mill men. Anon. *Textile World 97,* No. 2, 135, 192, 194 (Feb. 1947).

Cleaning of the spinning room, oiling spindles, perforated cots, synthetic aprons, and nonsloughing cams are discussed. TTD: 8-47

Spinning rings. "Waviness" of wear in spinning rings. Gossypium. *Textile Weekly 38,* 692, 694 (Oct. 11, 1946).

Maximum smoothness of spinning rings is most desirable in ring spinning. The main causes of "waviness" in the ring are use of an incorrect traveler, incorrectly shaped ring flange or spindle, and excessive friction. Remedies for these defects are suggested. TTD: 8-47

Spinning waste. Condenser spinning. R. Stansfield, Highams, Ltd. *Textile Weekly 38,* 640, 642, 644, 842, 844 (Oct. 4, Nov. 1, 1946).

In a lecture the processes and machinery involved in dealing with cotton waste, both "hard" and "soft", are briefly considered. TTD: 8-47

Traveler lag. Traveler lag in spinning and twisting. S. V. Mehn. *Textile Industries 111,* No. 1, 68-9 (Jan. 1947).

A formula for determining traveler lag, with an accompanying table, is given. TTD: 8-47

Worsted spinning. Spinning worsted-type yarns on cotton system machinery. John F. Bogdan, N. C. State College. *Textile Forum 4,* No. 1, 18-19 (Spring, 1947).

The history of this development is traced briefly. Mills which do not have machinery capable of maintaining wide roll settings in the drafting zones may be unable to process standard wools without cutting, but it is possible to procure very fine wools with staple lengths not exceeding 2″ which can be processed into very fine yarns on machinery found in most cotton spinning mills. Long-staple drafting machinery can be used to process wools with staple lengths up to 4″ into yarns which can not be distinguished from those made on the worsted system. An organization for spinning 40s worsted count yarns from wool top in 2 drawing operations, one roving, and one spinning is outlined. TTD: 8-47

Flax wet spinning. J. A. Matthew (to Linen Industry Research Assn.). Brit. P. 579 040. *Textile Mfr. 72,* 663 (Dec. 1946).

In a high draft method of spinning yarn from flax by a wet process, water is applied to the sliver during each of 2 or more successive drafts without the insertion of any twist to the sliver between the drafts.
PMS TTD: 8-47

Twister head. Lionel Desrosiers (to Ayers, Ltd.). Can. P. 441 673, May 27, 1947.

A twister head for spinning frames has a tubular body section with spaced projections at the upper end and a short tubular wear-resisting member that is removably fitted into an annular recess below these projections. TTD: 8-47

Plastic bonded bobbin. Geo. B. Markle, Jr. (to Freeland Spool & Bobbin Corp.). Can. P. 442 458, June 24, 1947.

A bobbin, such as might be used for twisting or spooling, consists essentially of a barrel and bushings of molded plastic material and heads formed of a different material. TTD: 8-47

Winding III 4

Beaming-off. Worsted winding: notes on beaming-off. Anon. *Textile Mfr. 72,* 644 (Dec. 1946).

Beaming-off of worsted warp yarn is briefly discussed, particularly with respect to piece rates. TTD: 8-47

Pirn winder. Weston pirn winder. Anon. *Textile Weekly 38,* 888, 890, 892, 902 (Nov. 8, 1946).

The new British pirn winder is described with accompanying illustrations. Some of the main features of the machine are: unique frame design, automatic yarn tension compensator, and standardization of high-speed parts. TTD: 8-47

Winding. Developments in winding. H. Marsden, Universal Winding Co. *Textile Weekly 38,* 932, 934, 936, 938 (Nov. 15, 1946).

Developments in winding machines are discussed. High winding speed, regular and consistent yarn quality, low maintenance costs, high efficiency, and the like are factors required for successful winding. TTD: 8-47

Winding glass yarn. G. Beach (to Owens-Corning Fiberglas Corp. through A. S. Cave). Australian P. 124 020, May 1, 1947.

See USP 2 391 870, Jan. 1, 1946 (TTD: *3,* 64). TTD: 8-47

Winding rayon. C. C. Vanderhooven. Brit. P. 579 254. *Textile Mfr. 72,* 665 (Dec. 1946).

Freshly spun rayon is wound into a cylindrical package having uniform permeability and density.
PMS TTD: 8-47

Yarn winding. Louis M. Cotchett (to Foster Machine Co.); Can. P. 442 288-90; Louis M. Cotchett, Lester Campbell, Ferdinand F. Stange & Alfred W. Arterton (to Foster Machine Co.); Can. P. 442 291, June 17, 1947.

See respectively USP 2 395 462, 2 395 464, 2 395 463, 2 395 465, Feb. 26, 1946 (TTD: *3,* 166). TTD: 8-47

Winding machine. Frank W. Higgins (to Universal Winding Co.). Can. P. 442 363, June 17, 1947.

See USP 2 365 701, Dec. 26, 1944 (TTD: *2,* 56-7). TTD: 8-47

Yarn processing III 5

Beaming. Allen high-speed cotton beamer. Anon. *Textile Weekly 38,* 646, 648 (Oct. 4, 1946).

The electrically controlled high-speed cotton beamer is described with an accompanying illustration. The main feature of the beamer is the ease of operation and simplicity of design. TTD: 8-47

Oiling. Automatic wool oiling. R. I. Smith, Walker & Smith, Ltd. *Wool Record & Textile World 70,* 1119-20 (Nov. 21, 1946).

A lecture on automatic oiling apparatus for wool blends is briefly summarized. TTD: 8-47

Warping. Feature of well-made warp. Anon. *Wool Record & Textile World 70,* 737-9 (Oct. 3, 1946).

Preparation of a well-made warp, dependent on a well-made yarn, is briefly discussed. TTD: 8-47

Yarn processing. American Yarn and Processing Company. Anon. *Textile Industries 111,* No. 2, 87 (Feb. 1947).

A new combination gasser and ball warper, that can produce 2 ball warps, gassed or untreated, in the same time that formerly one was produced, is discussed. TTD: 8-47

Yarn processing. Continuous filament yarns. A. Wright, G. Swindells & Son, Ltd. *Textile Weekly 38,* 1036, 1038, 1040 (Nov. 29, 1946).

Machinery and processing of continuous filament yarns (silk, cellulosic rayons, and synthetic yarns) are discussed. TTD: 8-47

Oiling yarn. Edwin A. Robinson & Arthur DeCastro (to Natl. Oil Products Co.). Can. P. 441 908, June 3, 1947.

See USP 2 403 304, July 2, 1946 (TTD: 3, 368). TTD: 8-47

YARN TO FABRIC IV

Terry towels. American methods of terry towel manufacture. T. Hargreaves. *Textile Mfr. 72,* 624-7 (Dec. 1946).

Methods and machinery used in terry towel manufacturing are described, including the processes from delivery of yarn to the final make-up after bleaching. TTD: 8-47

Yarn preparation IV 1

Rayon warping. Gage prevents run-outs in rayon warping. J. A. King. *Textile World 97,* No. 2, 246, 250 (Feb. 1947).

A multiple bobbin gage which can determine the weight of individual bobbins is described. The gage is to ascertain whether they contain yardage sufficient for warping, in order to prevent run-outs and subsequent knots. TTD: 8-47

Sizing spun rayon. Sizing of spun rayon. Glenn M. Anderson, Penick & Ford, Ltd., Inc. *Textile Forum 4,* No. 1, 16-17, 24, 27 (Spring, 1947).

The sizing material must bond the fibrous mass to prevent fiber slippage and must cement protruding fibers to the yarn. Starch products known as British gums were found to meet these requirements; also, they are easily prepared, can be handled at size box temperatures as low as 160°F without much retrogradation, and can be easily removed from the yarn after weaving. However, British gums of the early type, such as those used in textile printing, had too high a cold-water solubility, excessive tackiness, and low viscosities at the concentrations required. In recent years, corn starch manufacturers have developed gums which meet the requirements. The technique for handling these gums is discussed in detail. TTD: 8-47

Slasher room controls. Slasher room controls. L. C. Plaehn, Barber-Colman Co. *Textile Forum 4,* No. 1, 12-13, 28-30 (Spring, 1947).

A new size-cooking control has adjusting knobs and dials for regulating the length of the warming-up period, the cooking temperature, length of cooking, and the temperature at which the size is automatically held. The level of the sizing in the size box is controlled by means of electrodes. Solenoid valves are not suitable for size lines and a motor-driven valve has been developed. For the drying operation, steam pipes and condensate return pipes should be sufficiently large. A tight-fitting hood should be placed over the size box and cylinder to remove the vapor. Automatic moisture content controllers should be used to prevent damp or sticky warps and to maintain the proper moisture content. TTD: 8-47

Warp sizing, Permanent sizes approved by test in QM project at ITT. Anon. *Textile World 97,* No. 2, 122-3 (Feb. 1947).

The ITT project for obtaining permanent warp-sizing materials to replace starch is briefly reviewed. CMC-A, Stymer, Rhoplex MR, and Aerotex 625 were found to give satisfactory results. The materials were tested for mildew resistance, tensile strength, stiffness, and the like. A table is shown of the elongation at break of cotton fibers, sized with the above materials and starch. TTD: 8-47

Warp sizing. Cotton warp sizing. Paul V. Seydel. *Textile Industries 111,* No. 1, 76, 78, 80, 82, 85 (Jan. 1947).

Fats for lubricants and softeners are discussed with relation to warp sizing. No one fat is perfect either as a lubricant or softener, but rather a blend of two or several is essential for good results. A table of fats with their characteristics is given. TTD: 8-47

Weaving IV 2

Weaving. Attention to details can improve weaving. Anon. *Textile World 97,* No. 2, 151, 202, 205-6, 208, 210 (Feb. 1947); *Textile Bull. 71,* No. 5, 21-3 (Nov. 1, 1946).

A discussion of Georgia mill weaving practices. TTD: 8-47

Looms IV 2 a

Beat-up mechanism. Weft insertion. IX. S. A. G. Caldwell. *Textile Mfr. 72,* 622-3 (Dec. 1946).

The importance of the beat-up mechanism and the take-up motion in weaving are discussed, and the motions described in some detail with the aid of diagrams. TTD: 8-47

Dobby looms. Wrong lifts on dobby looms. D. C. Snowden, Leeds Univ. *Wool Record & Textile World 70,* 791-3, 846-8, 900, 902-3 (Oct. 10, 17, 24, 1946).

Detection and prevention of wrong lifts, resulting in warp or weft floats on the face of the fabric, are discussed. TTD: 8-47

Loom box binders. Shape of box binders can cause much loom trouble. H. E. Wenrich. *Textile World 97,* No. 2, 125, 196, 198, 200, 202 (Feb. 1947).

Yarn breaks, bang-offs, box stains, jerk-ins, and the like can often be traced to faulty binders. A discussion of maintenance of binders is given along with illustrative diagrams. TTD: 8-47

Loom fixing. Loom fixer's manual. Eugene P. Schremp. *Textile World 97,* No. 2, 238, 241, 242 (Feb. 1947).

Suggestions for maintaining filling feelers are given with diagrams. TTD: 8-47

Control devices IV 2 b

Loom let-off. Warp let-off motions. E. J. Poole, Wool Industries Research Assn. *Wool Record & Textile World 70,* 888 (Oct. 24, 1946).

A new warp let-off mechanism, composed of inter-geared fluted steel rollers with ball finished peaks and hollows and covered with an oil-resisting rubber sleeve, is discussed in a lecture. TTD: 8-47

Warp let-off. New automatic positive warp let-off motion. Anon. *Silk J. Rayon World 23,* No. 274, 33-4, 55 (Mar. 1947).

An automatic, self-compensating, let-off device which can be fitted to automatic or nonautomatic looms is

described with accompanying illustrations. It can be used for weaving any type of fabric. Warp tension remains constant throughout the beam, and many defects which result from uneven tensioning are avoided.
TTD: 8-47

Picker stick check. Harold Hoeber (to Textile Research Co.). USP 2 423 887, July 15, 1947.

An adjustable checking device is provided on the frame of a loom to engage the check strap for the picker stick. The object is to position the check strap in the same location at each stroke. A second object is to provide an adjustment for this check strap which can be operated while the loom is running.
SPH TTD: 8-47

Shuttle feeler guide. Carl D. Brown (to Draper Corp.). USP 2 424 019, July 15, 1947.

A device consisting of a roller mounted on the frame of the loom prevents the shuttle feeler from being pushed out of place when the shuttle is not in the correct position. A wire guide is provided to keep the filler yarn from getting caught in the device.
SPH TTD: 8-47

Loom control arm. Kenneth E. Sanderson & Leonard M. Rogers (to Draper Corp.). USP 2 424 058, July 15, 1947.

An electrical stop motion on looms usually involves a latching relay or some time delay device. This is required because the call or signal for a loom control action passes away before the control action is completed. An electrically operated solenoid with a mechanical latching device holds the control in position until the loom control operation is completed. The device may be a stop mechanism or it may be a control for the weft changing mechanism.
SPH TTD: 8-47

Warp stop indicator. E. Wilden. Brit. P. 579 080. *Textile Mfr. 72,* 664 (Dec. 1946).

A mechanical warp stop motion is arranged so as to flag the operator with a projecting lever.
PMS TTD: 8-47

Loom brake control. A. Berry. Brit. P. 579 312. *Textile Mfr. 72,* 88a (Dec. 1946).

In an improved brake control mechanism for looms, the brake band, when the brake is applied, is brought into contact with the brake wheel by a spring.
PMS TTD: 8-47

Loom. Adolf Lanz (to Baumwoll-Spinnerei & Weberei Wettingen). Can. P. 441 182, May 6, 1947.

Groups of threads are separated out of the warp,

diverted from the normal course followed by the remainder of the warp, and passed over a part of the pattern device which consists of at least one rocker which reciprocates during weaving. The movement of this reciprocating part is made adjustable. The endless travelling control means of the pattern device may be correlated to a dobby, or to a Jacquard-device pattern weaving machine. The pattern device is connected by means of a card cylinder to a clutch for the control of the movements of the rocker, and the clutch is operated by the endless travelling control device
TTD: 8-47

Fabric construction IV 2 c

Weave effects. Worsted features in fancy woolens. Dress and blouse cloths. Dressing gown fabrics. Twist yarn tweeds for export. Wool and angora mixture fabrics. Portex. *Wool Record & Textile World 70,* 732, 734-5, 788-9, 843, 845, 897-8, 952, 954 (Oct. 3, 10, 17, 24, 31, 1946).

Fancy woolen tweeds and twills, light-weight woolen fabrics and wool-angora blends are discussed, with structural details of the fabrics. TTD: 8-47

Weaving. Method for predetermining correct weaving pattern. Jas. A. Byars. Avondale Mills. *Textile Industries 111,* No. 1, 66-7 (Jan. 1947).

Formulas for the correct weaving pattern are given. The correct pattern in weaving means proper heddle frames, reeds and number of banks in warp stop motions. TTD: 8-47

Weaving wool. Color effects in wool cloths. W. L. Stuart, Halifax Technical College. *Wool Record & Textile World 70,* 1070-1 (Nov. 14, 1946); *Textile Mfr. 72,* 642-4 (Dec. 1946).

A brief review of weaving (production, trends, etc.) and designing (materials, structure, and color).
TTD: 8-47

Wool fabrics. Worsted costume cloths for export. Piece-dyed fancy worsted suitings. Saxony suiting tweeds for export. Cashmere and wool mixtures. Portex. *Wool Record & Textile World 70,* 1008-9, 1062, 1065, 1116-17, 1171, 1173 (Nov. 7, 14, 21, 28, 1946).

Fabric designs and construction details are given for all-wool and wool-blend fabrics. TTD: 8-47

Repp fabric. M. Banyai (to M. Banyai, Ltd.). Brit. P. 579 465. *Textile Mfr. 72,* 88a (Dec. 1946).

A repp fabric is produced by cross weaving a covering warp to each standing warp and binding the covering

warps by filling only on the underside of the standing warps.
PMS TTD: 8-47

Cotton-asbestos fabric. Boutwell H. Foster & Herbert E. Sunbury (to Dominion Rubber Co., Ltd.). Can. P. 441 878, June 3, 1947.

See USP 2 413 964, Jan. 7, 1947 (TTD: *4*, 112).
TTD: 8-47

Knitting — IV 3

Circular knitting machine. Chas. F. Manger, Geo. A. Buswell & Roland Peberdy (to Bentley Eng. Co., Ltd.). USP 2 423 989, July 15, 1947.

A needle selecting device is provided which selects the needles into 3 groups whereby some are directed into a high non-knitting track, some into a low non-knitting track, and others are permitted to remain in the normal knitting track. The object is to provide means whereby the continuity of the patterning over the instep portion of the hose will be maintained with greater accuracy.
SPH TTD: 8-47

Knitting. O. Fregeolle (to Hemphill Co.). Australian P. 124 265, May 29, 1947.

See USP 2 374 857, May 1, 1945 (TTD: *2*, 193).
TTD: 8-47

Knitting machines — IV 3 a

Interlock knitting machines. Wider use seen for interlock knitting. H. Wignall. *Textile World 97*, No. 2, 118-19 (Feb. 1947).

Interlock knitting machines are of circular construction, with a cylinder, dial, and alternating needles, which knit at alternate feeds. The fabric produced has the same stitch appearance on both sides and is more run resistant than plain or rib fabrics. Diagrams show the stitch construction. TTD: 8-47

Warp knitting. F. N. F. as engineer sees it. Anon. *Silk & Rayon 20*, 1421-2, 1424 (Dec. 1946).

The F. N. F. warp knitting machines is described as to its construction and operation with accompanying diagrams. TTD: 8-47

Warp knitting. Flying needle frame. Walter Clark, Textile Bulletin. *Textile Bull. 71*, No. 6, 38 (Nov. 15, 1946).

A brief review of the features of the F. N. F. warp knitting machine. The tubular needle, used in the flying needle frame, is described with an accompanying diagram. TTD: 8-47

Warp knitting machine. Warp knitting poses technical problems. O. B. Graham. *Textile World 97*, No. 2, 143, 145 (Feb. 1947).

The Cidega loom, warp knitting machine, is discussed with regard to the production and experimental work being done on it by mills. Position and size of creels and warp tension are problems which have been overcome. The details of the yarns in 2 fabric constructions are given. TTD: 8-47

Knitting machine. Harrison F. Hilker & Harold Welker (to Interwoven Stocking Co.). USP 2 424 033, July 15, 1947.

On a circular knitting machine equipped to make yarn changes in the process of making an article there are 2 loose ends left at each yarn change. These ends cause considerable trouble by getting caught in the needles and being knitted into the fabric, causing a defect. This device provides a correctly placed air jet which operates at the correct time to blow these loose ends to the inside of the cylinder where they do not cause any trouble.
SPH TTD: 8-47

Straight bar knitting machine. Wm. G. MacDonald (to Wm. Cotton, Ltd.). USP 2 424 105, July 15, 1947.

On a straight bar knitting machine it is common practice to employ a number of interchangeable carriers mounted on individual rods which are selectively driven. When not in use the carriers are retained in an idle, or rest, position beyond one or the other of the selvedges. Means for an improved method for selecting the active carrier and discarding the inactive carrier to the rest position are provided.
SPH TTD: 8-47

Knitting machine. Isaac H. C. Green & Eugene St. Pierre (to Hemphill Co.). Australian P. 123 940, Apr. 17, 1947.

See USP 2 381 275, Aug. 7, 1945 (TTD: *2*, 445).
TTD: 8-47

Knitting machine. W. A. Cooper (to Wm. Cotton, Ltd.). Australian P. 124 041, May 1, 1947.

See USP 2 382 544, Aug. 14, 1945 (TTD: *2*, 446).
TTD: 8-47

Knitting machine. DeHart G. Scrantom (to Western Electric Co., Inc.). Can. P. 441 948, June 3, 1947.

The needles used for knitting a covering on a strand are actuated electromagnetically. (*Cf.* USP 2 409 961 (TTD: *4*, 54).) TTD: 8-47

Knitting machine. Albert E. & Frank R. Page (to

Scott & Williams, Inc.). Can. P. 442 344, June 17, 1947.

See USP 2 409 306, Oct. 15, 1946 (TTD: *3*, 550).
TTD: 8-47

Control devices — IV 3 b

Stitch regulator. O. Fregeolle (to Hemphill Co.). Australian P. 124 107, May 8, 1947.

See USP 2 369 780, Feb. 20, 1945 (TTD: *2*, 104).
TTD: 8-47

Knitting machine stop motion. Alan C. Thomas (to Camille Dreyfus). Can. P. 441 411, May 13, 1947.

A photoelectric cell and a source of light are placed on opposite sides of the fabric and extend the full width of the fabric. The photoelectric cell is connected to a microammeter and switch which are adapted to stop the machine or give a warning on undue variation of the amount of light entering the cell by reason of faulty fabric. (*Cf.* USP 2 421 092, May 27, 1947 (TTD: *4*, 221).)
TTD: 8-47

Fabric construction — IV 3 c

Knitting technology. Loop formation and needle movements. H. Wignall. *Textile Mfr. 72*, 620-1 (Dec. 1946).

Weft and warp knitting are briefly considered. Loop formation and movements of the latch, bearded, and compound needles in forming loops are discussed.
TTD: 8-47

Hosiery. Full-fashioned stockings. J. B. Lancashire & J. C. Hurd. *Silk J. Rayon World 23*, No. 274, 38, 40 (Mar. 1947).

The yarn preparation for knitting full-fashioned hosiery is reviewed with reference to doubling, twisting, processing, twist-setting and the like. TTD: 8-47

Seamless hosiery. Paul L. Thurston, Harrison F. Hilker & Harold Welker (to Interwoven Stocking Co.). USP 2 421 817, June 10, 1947.

On a circular knitting machine seamless hosiery of a special design is knitted. Certain portions of the article are to be of a terry fabric in which a body thread and terry thread are fed to the needles in such a way that longer loops are drawn in the terry thread to provide terry loops on one side of the fabric. At the same time it is desired to produce a decorative wrap embroidery pattern by feeding wrap thread to selected needles and knitting the wrap thread in plated relation with the body thread. This machine provides means for accomplishing both of these results in the same machine and on the same article.
SPH TTD: 8-47

Fourchette toe hosiery. Clare A. Lambert. USP 2 422 736, June 24, 1947.

By an alteration in the usual construction of the toe of a stocking, in which a vertical piece of material is provided at the closure, the acute angle, at which the upper and lower portions of the stocking are joined by present methods, is eliminated. This piece of material extends around the toe end of the stocking and back to the basal joints of the large and small toes.
SPH TTD: 8-47

Special fabrics — IV 4

Braid. Braided fabric manufacture. Arthur E. Hirst, Standard Chem. Products Co. *Textile Industries 111*, No. 1, 61-4 (Jan. 1947).

There are 2 classes of braided fabrics: flat and round. These braids may be formed of a large variety of materials, such as cotton, wool, rayon, rubber, and the like. The manufacture and processing of braided fabrics (at Heywood Narrow Fabric Co.) is discussed, with illustrated descriptions of braiding machines. TTD: 8-47

Pile fabric. Brit. Celanese, Ltd., Brit. P. 579 015. *Textile Mfr. 72*, 663 (Dec. 1946).

The production of material having a pile construction comprises the application of a base of thermoplastic material to a bundle of parallel fibers. A section is detached from the bundle after cutting and fusing operations. The material on one face of the section is fused to form a backing, thus holding the cut fibers in parallel position.
PMS TTD: 8-47

Braiding machine spindle. T. Burrows (to Faire Bros. & Co., Ltd.). Brit. P. 579 402. *Textile Mfr. 665* (Dec. 1946).

The bobbin holder of a braiding machine spindle is mounted so that the downward thrust of the holder is taken by a bearing near its upper end.
PMS TTD: 8-47

Wire fabric. Harry Crawshaw (to Henry Dreyfus). Can. P. 441 764, May 27, 1947

See USP 2 412 562, Dec. 17, 1946 (TTD: *4*, 55).
TTD: 8-47

Fabric processing — IV 5

Curing. Radiant heating. Anon. *Textile Weekly 38*, 414, 416 (Aug. 30, 1946).

Radiant heating consists of subjecting materials to the action of radiation of a longer wave length than light. This rapid method of heating is being used to cure ma-

terials coated with polyvinyl chloride. The heating panel, used to produce radiant heat, is described.
TTD: 8-47

Conveying wet fabric. H. Whitehead (to Fearnleys (Dyers) Ltd.). Brit. P. 579 258. *Textile Mfr. 72,* 665 (Dec. 1946).

Tensile stresses in handling wet fabrics are reduced by means of conveyors.
PMS TTD: 8-47

Fabric shrinking. John H. Wrigley & Alexander Melville (to Bradford Dyers' Assn.). Can. P. 442 437, June 24, 1947.

The fabric is passed lengthwise over 2 rollers driven at different speeds so as to travel more slowly at the second roller. The rate of travel is adjusted so that the fabric does not buckle but can contract to become thicker and shorter. TTD: 8-47

Fabric applications IV 6

Hat. Carleton S. Francis, Jr. (to Sylvania Industrial Corp.). Can. P. 441 260, May 6, 1947.

A hat body is composed of at least 1 layer of a knitted fabric and at least 1 layer of felt formed from at least 2 types of fibers (adhesive and non-adhesive). After shaping it is subjected to an activating agent.
TTD: 8-47

Imitation leather cloth. Sam Platt & Wm. O. Street. Can. P. 441 642, May 27, 1947.

A foundation of shrinkable fibrous material is bonded to a flexible film and the foundation is shrunk. This wrinkles the flexible film and gives it a grained pattern.
TTD: 8-47

Coated acetate screening. Camille Dreyfus. Can. P. 441 646, May 27, 1947.

See USP 2 407 632, Sept. 17, 1946 (TTD: *3,* 554).
TTD: 8-47

Leather-like material. Merwyn C. Teague (to Dominion Rubber Co., Ltd.). Can. P. 441 874, June 3, 1947.

A material which can be used for shoe uppers is formed of 2 knitted fabrics bonded together by a layer of rubber between them. The fabric sheets will stretch 8-25% in one direction and less than 5% in the other. One of the fabrics is coated with a stretchable thermoplastic layer of tough synthetic plastic which gives excellent wear without scuffing, creasing or cracking. TTD: 8-47

Elastic fabric. Thos. G. Hawley, Jr. & Nicolai Timenes (to Internatl. Latex Processes, Ltd.). Can. P. 441 893, June 3, 1947.

An initial longitudinal slack is introduced into a fabric,

the fabric is stretched transversely, and an elastic layer, such as rubber latex, is applied to the stretched fabric.
TTD: 8-47

Insulating fabric. Donald Finlayson & Harry Crawshaw (to Henry Dreyfus). Can. P. 441 966, June 3, 1947.

See USP 2 370 946, Mar. 6, 1945 (TTD: *2,* 144).
TTD: 8-47

CHEMICAL RAW MATERIALS V

Hydroxylating fibers. Hydroxylated natural and man-made fiber-forming polymers. Anon. *Silk & Rayon 20,* 1486, 1488, 1490 (Dec. 1946).

A monocyclic urea reagent is described which is being used to modify hydroxylated polymeric compounds and render them insoluble in various solvents, particularly water. TTD: 8-47

Plastics and elastomers V 1

Plastics. Use of plastics to strengthen textiles. Harley Y. Jennings, Dan River Mills, Inc. *Textile Bull. 71,* No. 8, 36, 38, 70 (Dec. 15, 1946).

The application of plastics to yarns and fabrics has greatly increased the tensile strength of the finished product. The Fiber Bonded process (of Dan River Mills) is discussed and a description of the machine with an accompanying illustration is given. TTD: 8-47

Plastics. Plastics in textile industry. E. H. G. Sargent, J. Burns, Ltd. *Textile Mfr. 72,* 629-32 (Dec. 1946).

The properties of the most frequently used plastics are reviewed with the aid of 2 tables. Applications in construction of bearings, cams, gears and the like are also discussed. TTD: 8-47

Rubber latex. Positex. Anon. *Textile Weekly 38,* 1090, 1092 (Dec. 6, 1946).

Positex is a rubber latex that has been converted into a positively charged substance. It will impart to a soft-twisted yarn the tensile strength of a hard-twisted yarn and can be used to prepare felts from non-felting fibers. Other applications of Positex are in the production of embossed designs, as an adhesive, etc. TTD: 8-47

Urea resins. Urea derivatives instead of urea for textile treatment. Anon. *Silk & Rayon 19,* 922-3, 998, 1000, 1220-1, 1223-4, *20,* 97-9, 350-2, 602-4, 750, 753-4, 853-5, 1234, 1236, 1238, 1497-8, 1500, *21,* 248, 250, 252, 254 (Sept., Nov., 1945; Jan., Mar., May, June, July, Oct., Dec., 1946; Feb. 1947).

A review of British patents on the use of urea derivatives, such as the compounds of guanidine and melamine, in textile processing. TTD: 8-47

Yarn coating. Use of resins in yarn treatment. E. B. Higgins, Imperial Chemical Industries, Ltd., *Textile Weekly 38,* 994, 996, 998 (Nov. 22, 1946).

A lecture on employing thermosetting and thermoplastic resins for coating yarns and in other yarn processes is summarized. TTD: 8-47

Resin-impregnating fabrics. Walter R. Hoover, Robt. M. Paulsen & Stephen V. Landgraf (to Dominion Rubber Co., Ltd.). Can. P. 441 872, June 3, 1947.

Hydrazine or its salts are mixed with a polymerizable mixture of a liquid monomeric unsaturated compound containing an ethylenic linkage and a reactive liquid resinous compound produced by the esterification of an alpha-beta unsaturated organic acid with a polyhydric alcohol in the presence of a peroxide catalyst. Phenyl hydrazine is claimed specifically. TTD: 8-47

Cellulose acetate coating. Wm. H. Moss (to Camille Dreyfus). Can. P. 442 390, June 17, 1947.

An open-work, wire-reinforced, woven fabric is heavily coated with a plasticized cellulose acetate without the use of an active volatile solvent, the reinforced fabric being doped with a hot solution of the acetate in a homogeneous mixture of a solvent-plasticizer for the acetate. TTD: 8-47

Surface-active compounds V 2

Surface-active agents. Cationic softeners give permanent finish. C. Norris Rabold, Textile World. *Textile World 97,* No. 2, 147, 149 (Feb. 1947).

Cationic softeners are synthetic surface-active agents which possess a positive charge of electricity in aqueous media. This charge gives the softener affinity for negatively charged fibers, establishing a firm bond and, therefore, a durable finish. They are especially effective on synthetic fibers. Tests have been developed to evaluate the finish, and pictures are shown of testers. TTD: 8-47

Tinopal BV. New textile auxiliary to replace blueing agents. Anon. *Silk & Rayon 21,* 108-9 (Jan. 1947).

Tinopal BV produces an intensive blue fluorescence and may be successfully used to produce a superior white in bleaching, dyeing and printing processes. TTD: 8-47

Textile dressing. Geo. W. Miles (to Camille Dreyfus). Can. P. 441 274, May 6, 1947.

A sulfonated vegetable oil, particularly olive, such as might be used as a textile dressing, is prepared by sulfonating the oil with H_2SO_4 (95% conc.) at a temperature below 30°C, dissolving the sulfonated oil in

at least an equal volume of a non-aqueous solvent, neutralizing the excess acid, and removing the solvent. TTD: 8-47

MONOMOLECULAR LAYERS. APPLICATION TO TEXTILE INDUSTRY. M. Vallée (Centre de Perfectionnement technique. Cours-conferences No. 1401, June 12, 1945). Presses Documentaires, Paris; 10 pp.; price 20 f.

Reviewed in *Chimie et industrie 56,* No. 2, 131 (Aug. 1946). TTD: 8-47

CHEMICAL PROCESSING VI

Finishes. Abril waxes. Anon. *Textile Weekly 38,* 748 (Oct. 18, 1946).

A brief note on abril waxes, by-products of the margarine, soap, and other fat-splitting industries, useful as textile finishes. TTD: 8-47

Finishing. Fabric finishing. Richard W. Powell, Bradford Dyeing Assn. *Textile Bull. 71,* No. 4, 48, 50, 52, 82-3 (Oct. 15, 1946).

Developments in the bleaching, dyeing, and finishing of fabrics are reviewed. TTD: 8-47

Finishing developments. Better finishes at less cost is goal of industry. C. Norris Rabold & N. D. Marius. *Textile World 97,* No. 2, 114-15 (Feb. 1947).

A discussion of improvements in the finishing industry in the past year. TTD: 8-47

Sizing. Textile sizing. R. Trafford. *Textile Weekly 38,* 940, 942, 944 (Nov. 15, 1946).

Size mixing, boiling sizes, yarn immersion and other matters related to sizing are discussed in a lecture. TTD: 8-47

Wool processing. Use of alkali in loose wool processing. N. W. Gillam, Shell Co. of Australia, Ltd. *Textile J. Australia 22,* 87-91 (Apr. 1947).

Recommendations for changing the formula of raw wool scouring and neutralization after carbonizing are given in an effort to effect a saving in the use of soda ash. In a discussion of these recommendations are given an average daily consumption of chemicals and the general principles involved in removing impurities from wool. Raw wool scouring is contrasted with piece goods scouring and the possibilities of fiber damage during the process considered. More attention should be given to removal of excess acid by washing with water after carbonizing and prior to neutralizing with alkali.
ELW TTD: 8-47

Cellulose ether. Robert P. Roberts, Edgar B. Johnson & Harry H. Taylor (to Henry Dreyfus). Can. P. 441 276, May 6, 1947.

A cellulosic textile is treated first with an alkali and then with an etherifying agent so that it retains its structure whereas the cellulosic substance is substantially completely converted into a cellulose ether which can be swollen or dissolved by cold water. TTD: 8-47

INFRARED RAYS IN TEXTILE INDUSTRY (Centre de Perfectionnement technique, Cours-conferences, No. 1402, May 16, 1945). M. Deriberi. Presses Documentaires, Paris; 6 pp.; price 12 f.

Reviewed in *Chimie et industrie 56,* No. 2, 131 (Aug. 1946). TTD: 8-47

COLOR VII

Dyeing VII 2

Color shades. New shades and the dyehouse. Anon. *Wool Record & Textile World 70,* 853-4, 904, 906 (Oct. 17, 24, 1946).

Some problems presented to the dyer in producing new shades are discussed. TTD: 8-47

Dyeing cotton. Mineral content of cotton can affect beam dyeing with vats. Anon. *Textile Industries 111,* No. 1, 125, 127 (Jan. 1947).

Uneven dyeing may occur when cotton yarn, containing minerals, is dyed on beams with vat dyes. This unevenness may be avoided by boiling the yarn with acetic acid. TTD: 8-47

Dyeing cotton. Cotton dyeing. Kurt Brass & Walther Schreier. *Kolloid-Z. 108,* Nos. 2 & 3, 155-66 (1944); *in German.*

The changes brought about in cotton through dyeing were studied, with special emphasis on viscosity, tenacity, rotary power, and nitrogen content. The dyes used included substantive dyes, copper dyes, and Naphthol AS (2-hydroxy-naphthoic acid anilide and *o*-nitro-*p*-toluidine). TTD: 8-47

Dyeing mixed fabrics. Uniform dyeing of mixed fabrics. A. Gantier. *Ind. Textiles 62,* No. 700, 57-8 (Mar. 1945); *Chimie et industrie 56,* No. 2, 130 (Aug. 1946).

In order to dye mixed fabrics uniformly, it is necessary that the constituents of a mixture of leuco-sulfuric acid esters of different vat dyes have an affinity for the different fibers of the mixed fabric. Up to now, such mixtures have not been used. Fast, even dyes in gray shades can be obtained on the mixed fabrics by using the

following leuco-sulfuric and esters of vat dyes: (a) a leuco-sulfuric acid ester of a vat dye which dyes cellulose shades from olive green to brown; (b) a leuco-sulfuric acid ester of dibenzanthrone, or one of its substitution products, giving blue shades and (c) a leuco-sulfuric acid ester of an olive green vat dye of a given formula, or of a 2,2'-dialkoxydibenzanthrone, or a substitution product, giving green shades. These mixtures can be prepared in the dye baths. TTD: 8-47

Dyeing polyvinyl chloride. Some problems connected with coloration of polyvinyl chloride. Jas. Haworth & B. N. Leyland. *Silk J. Rayon World 23,* No. 274, 35-7, 52 (Mar. 1947).

A discussion with the aid of tables of the properties of organic and inorganic pigments in polyvinyl chloride compositions. Organic pigments seem to offer the best results for dyeing; inorganic pigments, giving nonbleeding properties, may be used, although the shades produced tend to be flat and dull. TTD: 8-47

Dyeing synthetics. Processing and dyeing synthetic fibers. L. S. Thompson. Gen. Dyestuff Corp. *Textile Forum 3,* No. 4, 17, 47-9 (Winter, 1946).

Processes for producing and dyeing viscose, cuprammonium, and acetate rayons, high tenacity rayons, aralac, nylon, fiberglass, Vinyon, and Saran are described. TTD: 8-47

Dyeing viscose rayon. Caledon and Durindone dyestuffs on viscose rayon. Anon. *Silk & Rayon 21,* 118, 120, 122, 125 (Jan. 1947).

The dyeing of viscose rayon with Caledon and Durindone dyes is discussed, and the various methods of application given. Caledon and Durindone dyes have excellent fastness properties and are being used more frequently on viscose rayon today. TTD: 8-47

Dyeing woolens. Dyeing for heavy woolen industry. Kemmek. *Textile Weekly 38,* 412 (Aug. 30, 1946).

Dyeing of heavy woolen cloths, as meltons, tweeds, and the like, is briefly reviewed. TTD: 8-47

Sulfur dyes. Dyes containing sulfur prepared from sodium derivatives and sulfur. H. Gault & M. Cogan. *Teintex 11,* No. 1, 20-1 (Jan. 15, 1946); *Chimie et industrie 56,* No. 6, 486 (Dec. 1946).

A silk dye was prepared by reacting S with an alcoholic solution of sodium ethylate. Once fixed on the fibers, it was found to be very stable and unaltered on exposure to light and air. Strong acids caused it to deteriorate very slowly. Other Na derivatives as well as Ca derivatives were tested for their ability to form dyes by reaction with S and it was found that only the Na

compounds were suitable for this purpose. Other alkali metal derivatives may possibly react in the same manner as the Na compounds. TTD: 8-47

Vat dyeing. How mineral content of cotton can affect beam dyeing with vat colors. Anon. *Am. Dyestuff Reptr. 36,* 104-7 (Mar. 10, 1947).

Uneven dyeing of beamed warps with vat colors on certain cotton yarns was traced to formation of metallic hydroxides formed on the yarn during the dyeing process. Analysis of ash contents of undyed yarn, dyed yarn, yarn treated with acetic acid, and this yarn after dyeing, showed that the source of the metallic elements was in the yarn itself.
ELW TTD: 8-47

Wool dyes. Increasing affinity of cellulose for wool dyes. Renaud. *Ind. Textile 62,* No. 700, 56-7 (Mar. 1945); *Chimie et industrie 56,* No. 2, 130 (Aug. 1946).

Natural or regenerated cellulose can be rendered more receptive to wool dyes by incorporating certain azotized materials in these fibers. The dyes thus obtained are in general less solid than the corresponding dyes obtained on wool. Examples of these materials are condensation products of high molecular weight polysulfonic acids with diamines containing a tertiary nitrogen.
TTD: 8-47

Oxidizing dyed material. Mathieson Alkali Works. Brit. P. 579 134. *Textile Mfr. 72,* 664 (Dec. 1946).

Cellulose materials are treated with dyes in an alkaline solution and then passed into an H_2O_2 solution, for oxidizing in the presence of $NaHCO_3$.
PMS TTD: 8-47

Printing VII 3

Hand printing. Hand printing of textiles. E. S. Beton, Brocklehurst Whiston Amalgamated, Ltd. *Silk J. Rayon World 23,* No. 274, 50 (Mar. 1947).

Hand-block and screen printing, the 2 most important methods of hand printing, are briefly reviewed.
TTD: 8-47

Printing gums. Use of synthetic cellulose gums for textile printing. E. P. Sommer, Gen. Dyestuff Corp. *Textile Age 11,* No. 3, 46, 48, 50-2 (Mar. 1947).

Sodium cellulose glycolate is an easily soluble cellulosic gum which, depending on the degree and form of substitution of the cellulosic radical, may have a wide variety of properties. Due to this fact it can be utilized most successfully in the printing process as it may be modified to meet necessary qualifications. TTD: 8-47

Printing plastic fabrics. Photographic printing process for plastic and nylon. Anon. *Silk & Rayon 20,* 1340 (Nov. 1946).

A brief discussion of a multi-color printing process using a hand-operated, non-machine, photographic screen printing apparatus. TTD: 8-47

Blanket printing. Wm. C. Ross (to Dewey & Almy Chemical Co.). Can. P. 441 350, May 13, 1947.

In a printing process a finely divided powder (in particular, bentonite) is applied to the surface of a printing blanket and the color applied to the textile which is superimposed upon the blanket, the powder and excess color being subsequently removed by passing through a washer. TTD: 8-47

Printing cellulose acetate. Robt. L. Hunter & Ralph D. Cramer (to Camille Dreyfus). Can. P. 441 964, June 3, 1947.

In producing a patterned fabric cellulose acetate fabric is immersed in a liquid having a solvent or swelling action (33.5-70% of a lower aliphatic acid) and containing a dye for the acetate, and then passed under pressure between a pair of unheated rolls, one of which is smooth and the other engraved in intaglio fashion with the desired pattern. TTD: 8-47

Measurement and defects VII 4

Dye diffusion. On a phenomenon taking place in diffusion of dyes. S. M. Soloviev. *J. Gen. Chem.* (USSR) *16,* No. 45, 743-5 (1946).

In the study of the diffusion of dyes into the gelatine gel, the formation of layers of different color has been observed. There is a sharp difference in color between the 2 upper layers, whereas the color of the lower layer becomes gradually weaker and is scattered within the gel's depth. Thus, for instance, for pinacyanol the upper layer was colored dark violet, the middle one was crimson and the lower one was pale blue. Among the carbocyanine dyes that have been tested, this phenomenon was noted in the case of pinacyanol and 3,3′-dimethyl-9-ethylthiocarbocyanine chloride. The influence of the solvent on the concentration of the dye and of the gelatine have been investigated. The cause of the phenomenon is discussed. TTD: 8-47

Dye fastness. Studies on fastness of dyes to light. I. S. M. Soloviev. *J. Gen. Chem.* (USSR) *16,* No. 7, 953-60 (1946).

When gelatine is added to solutions of fading cyanine dyes, only those dyes are proved to be fast which are capable of an easy aggregation in the presence of gelatine. The improvement in the fastness of dyes in the presence of electrolytes is in agreement with the coagulating ef-

fect of the ions that are introduced. The fastness of dyes in solution increases with a decrease in the dispersion of the particles of the dyes. TTD: 8-47

Dyeing defects. Dyeing imperfections from faulty singeing. C. S. Jones. *Textile Age 11,* No. 3, 114, 116 (Mar. 1947).

Hairy surfaces of fabrics lead to deeper dyeing; but sheer surfaces are more desirable as they are an aid to final finishing processes. To obtain a sheer surface the fabric must be singed carefully, for uneven singeing will result in streaky dye effects. TTD: 8-47

Wool dyeing. Studies on wool dyeing: crocking. Henry E. Millson, Willard H. Watkins & Geo. L. Royer, Am. Cyanamid Co. *Am. Dyestuff Reptr. 36,* 122 (Mar. 10, 1947).

References unintentionally omitted from this article (*Am. Dyestuff Reptr. 36,* 45-63, 69-70 (Feb. 10, 1947)) are given (see TTD: *4,* 232).
ELW TTD: 8-47

PROOFING VIII

Shrinkproofing wool. Unshrinkable finishes for wool: cost problem. Anon. *Silk & Rayon 20,* 1502, 1504, 1506 (Dec. 1946).

A review of the various methods of processing wool to render it shrinkproof and the relative costs. TTD: 8-47

Shrinkproofing wool. Case study in shrinkproofing woolen fabrics with Resloom. D. H. Powers, Monsanto Chem. Co. *Textile Age 11,* No. 3, 90, 92, 94-6 (Mar. 1947).

Woolen fabrics must be thoroughly desized or scoured before application of Resloom solutions. The resin must thoroughly penetrate the fibers and the surface solution be completely removed to effectively shrinkproof wool. Application and subsequent drying, washing, and the like are described. TTD: 8-47

Wool preservation. Use of naphthenates in preservation of wool and fabrics. M. D. Gurwen. *Oil & Color Trades J. 109,* No. 2465, 82-6 (Jan. 11, 1946); *Chimie et industrie 56,* No. 2, 122 (Aug. 1946).

A copper aluminum naphthenate was used to protect rope, wood, fabrics, etc., against mold in New Guinea during the war. Aluminum acts as a stabilizing agent in this compound. TTD: 8-47

Gasproof coating. G. A. Griffiths (to Imperial Chemical Industries of Australia & New Zealand, Ltd.). Australian P. 121 051, May 15, 1947.

Fabric may be rendered highly resistant to penetration

of mustard gas vapor or liquid by coating or impregnating with a composition containing a cellulose derivative and polyhydric alcohol-polycarboxylic acid resin.
TTD: 8-47

Waterproofing Vinyon. Waterproofing of Vinyon points to new finishing ideas. Anon. *Silk & Rayon 21,* 105-6 (Jan. 1947).

The process of bonding polymer films to Vinyon to produce waterproof fabrics is discussed. No adhesive substance is used, and the film is held to the surface of the fabric by mechanical and valency forces. Nylon and Saran may also be waterproofed by this process. A table of elastomers that may be used is given. TTD: 8-47

Siloxanes. Melvin J. Hunter, Herbert J. Fletcher & Chester C. Currie (to Dow Chemical Co.). USP 2 415 389, Feb. 4, 1947.

A method of making siloxane polymers is claimed. The products are liquids or solids which are stable against decomposition by heat, have good dielectric properties, and may be used to waterproof hydrophilic solids.
TTD: 8-47

Flameproofing. L. A. Jordan & L. A. O'Neill. Brit. P. 579 328. *Textile Mfr. 72,* 665 (Dec. 1946).

A fire resistant treatment for textile fibers consists essentially of precipitating antimony oxide within the material.
PMS TTD: 8-47

Reducing wool shrinkage. Bleachers' Assn., Ltd. Brit. P. 579 584. *Textile Mfr. 72,* 665 (Dec. 1946).

The shrinkability of wool fibers is reduced by treatment with a solution of peroxides or per salts or compounds, capable of evolving oxygen as described in Brit. P. 553 923.
PMS TTD: 8-47

Crease-resistant fabrics. C. M. Whittaker (to Courtaulds, Ltd.). Brit. P. 579 709. *Textile Mfr. 72,* 88a (Dec. 1946).

The crease resistance of textiles is improved by impregnating with a solution containing a partially condensed aldehyde resin, ammonium thiocyanate, and sodium hexametaphosphate.
PMS TTD: 8-47

Waterproof coating. Geo. O. Morrison & Henry M. Collins (to Shawinigan Chemicals, Ltd.). Can. P. 441 392, May 13, 1947.

A wax, such as paraffin wax melting at 47-140° F, is added to an aqueous dispersion of polyvinyl acetate produced by emulsion polymerization in the presence of

an emulsifying agent. An oleaginous softener for the wax and a plasticizer for the polyvinyl acetate may be added to the dispersion. TTD: 8-47

TESTING AND ANALYSIS IX

Cellulose fiber density. Density and refractivity of cellulose fibers. P. H. & J. J. Hermans & D. Vermaas. *Kolloid-Z. 109,* No. 1, 9-16 (Oct. 1944).

Methods for the determination of the density and refractivity of natural and synthetic fibers are described. Among the fibers tested are bleached and standard cotton, cellulose (α-fiber), Bemberg silk, and viscose. TTD: 8-47

Cellulose fluidity measurements. Improved equipment and methods for fluidity measurements of cellulose and cellulose acetate. Dorothy S. Lyle & Frances K. Ray, Penna. State College. *Am. Dyestuff Reptr. 36,* 123-7 (Mar. 10, 1947).

An improved mixing device for the dispersion of cellulose in cuprammonium solution and cellulose acetate in acetone and a constant temperature bath which will accommodate 20 mixing vials and 7 pipette viscometers for measurement of cellulose and cuprammonium solution are described.
ELW TTD: 8-47

Fire resistance. Fire resistance in aircraft textiles. Jas. R. Redmond. *Am. Dyestuff Reptr. 36,* 103, 121 (Mar. 10, 1947).

Procedures of the Civil Aeronautics Administration for testing flame resistance and flash resistance of materials are outlined, and materials which fall into these categories are listed. The regulations of the C. A. A. in regard to use of these materials are also discussed.
ELW TTD: 8-47

Rayon washability. Rayon in wash tub, importance of laundry tests, rinsing nylon hose, commercial and home water softeners. Barbara Budden. *Silk & Rayon 21,* 89-90 (Jan. 1947).

The work of the Lux Washability Bureau is discussed. Research on home washing is carried on with tests for the effect of hard and soft water, sun fastness, and the like. TTD: 8-47

Standards. Textile standardization. Anon. *Ind. Standardization 18,* No. 9, 228 (Sept. 1947).

Standardization of textiles such as cotton, jute, linen, rayon, and wool will be supervised by a newly established Textile Divisional Council of the British Standards Institution. TTD: 8-47

Testing sliver and yarn. Pacific sliver and yarn tester.

Anon. *Textile Industries 111,* No. 1, 135 (Jan. 1947).

The Pacific sliver and yarn tester is described briefly. TTD: 8-47

Testing specific gravity. Automatic method of determining specific gravity. Anon. *Silk & Rayon 20,* 1510 (Dec. 1946).

Specific gravity can be determined by placing the unknown liquid under a known vacuum in one leg of an instrument while the other leg contains water. The difference shows the specific gravity. TTD: 8-47

Water repellency test. Correlation of water-repellent garment performance and laboratory penetration tests on fabrics. Geo. A. Slowinske & Arthur G. Pope, E. I. du Pont de Nemours & Co. *Am. Dyestuff Reptr. 36,* 108-21 (Mar. 10, 1947).

The relationships of 5 different laboratory penetration tests and the performance of cotton garments under conditions of rain are studied. Fabrics were subjected to the rain, the Bundesmann, the drop-penetration, the hydrostatic pressure, and the impact penetration tests, all of which are described. The rain tester is a new instrument, markedly different from other types in that it makes use of different intensities of water impact instead of falling drops of a single intensity. Garments made from the same fabrics as used in the penetration tests were worn in a rain room. Both the fabrics' and garments' performance was evaluated and their data analyzed.
ELW TTD: 8-47

Wool fabric specifications. Motor car upholstery. Anon. *Wool Record & Textile World 70,* 797, 799 (Oct. 10, 1946).

Specifications for wool upholstery for cars, set up by the Society of Motor Manufacturers and Traders, Ltd., are described with the conditions for testing given. TTD: 8-47

Wool shrinkage. Wool industry asks for shrinkage practice rules. Anon. *Ind. Standardization 18,* No. 9, 224 (Sept. 1947).

The American Wool Council and a group of woolen mills have asked the Federal Trade Commission to set up trade practice rules for labeling of shrinkage processes and to provide standard terminology and definitions. TTD: 8-47

TEXTILE MILLS X

Color in mills. Dividends from planned painting. S. W. Quisenberry, E. I. du Pont de Nemours &

Co. *Textile Industries 111,* No. 2, 73-7 (Feb. 1947).

Paint in mills can do more than act as a protective covering for machinery, floors, and the like. Color may also be used as an aid in improving production and employee efficiency, and reducing accidents. TTD: 8-47

Buildings, machinery, power X 1

Cotton mill maintenance. Industrial describes maintenance schedule. Anon. *Textile Industries 111,* No. 2, 92-3, 137 (Feb. 1947).

A discussion of the maintenance program at Industrial Cotton Mills Co., Inc. TTD: 8-47

Dyeing and finishing plant. California finishing plant expands 150% since 1941. Richard L. Bean. *Textile World 97,* No. 2, 137, 139 (Feb. 1947).

A review of the expansion of the Natl. Dyeing and Finishing Corp. and trends in future improvements. TTD: 8-47

Electric power. Electric wiring for power. Jas. T. Meador. *Textile Bull. 71,* No. 5, 24, 26, No. 7, 28, 30 (Nov. 1, Dec. 1, 1946).

A discussion of electric wiring for a cotton mill with particular reference to the power needed for lighting. TTD: 8-47

Electronics. Electronics in textiles. R. J. Demartini. Gen. Electric Co. *Textile Forum 3,* No. 4, 12-16, 43-5 (Winter, 1946).

Thyratron tubes are used to convert a. c. into d. c. for use in d. c. motors, which are used because they are more easily controlled. Vacuum tube circuits are used to control the speed and torque of the motors and permit the use of electric signals derived from such devices as tachometer generators, photo tubes, strain gages and from measurements of currents and voltages associated with the drive motor itself. Applications to warp drives, high-tension beamers, follower drives, photoelectric loop control, full-fashioned knitting machine drive, pendulum-tester drive, yarn diameter measurements, color measurements by means of the photoelectric spectrophotometer, weft straighteners, positive end-break detection and seam detection are described. TTD: 8-47

Engineering improvements. One-story mills favored by modern engineering. Anon. *Textile World 97,* No. 2, 115-16 (Feb. 1947).

New plants, mill additions, and the like are briefly reviewed. TTD: 8-47

Floor maintenance. U. S. methods of mill floor maintenance. F. A. Westbrook. *Textile Mfr. 72,* 633-5 (Dec. 1946).

The importance of efficient floor maintenance is stressed as it affects employee morale, low waste in spoiled materials, accident prevention, and materials transportation. Different types of floor machines for dry cleaning or scrubbing are described. TTD: 8-47

Heat for processing. Super-heated water gives economy and greater efficiency. Anon. *Silk & Rayon, 21,* 130, 132 (Jan. 1947).

The use of high pressure hot water in plant heating systems has many advantages over the use of steam. It is an ideal heat carrier, eliminates all losses of heating fluid, and the cost of maintenance is low. TTD: 8-47

Machinery developments. New developments in textile industry. Walter Gayle, Saco-Lowell Shops. *Textile Bull. 71,* No. 5, 15-16, 18, 37 (Nov. 1, 1946).

Cotton machinery and its developments are discussed in general, including especially long-draft roving and spinning frames. TTD: 8-47

Machinery developments. Knitting and finishing lead new machine development. Gordon B. M. Walker, Textile World. *Textile World 97,* No. 2, 112-14 (Feb. 1947).

Knitting, finishing, yarn production, control, and testing machinery and equipment are discussed with regard to the latest developments and improvements. TTD: 8-47

Machinery lubrication. Lubrication. J. T. Rock. *Textile Industries 111,* No. 2, 81-4, 137 (Feb. 1947).

Semi-automatic oilers, lubricating devices and checking lubrication schedules are discussed. TTD: 8-47

Machinery maintenance. Applied maintenance plan. M. R. Harden. *Textile Industries 111,* No. 2, 78-80 (Feb. 1947).

A plan of machinery maintenance is given for openers, pickers, cards, drawing and spinning frames, etc. TTD: 8-47

Machinery modernization. Dover Mill group. Anon. *Textile Industries 111,* No. 2, 85-7, 119 (Feb. 1947).

Improvements in machinery, made by fancy fabric mills (Dover Mill group), to increase efficiency are described and illustrated. TTD: 8-47

Maintenance. Controlled hot water, inspection belts, clean steam, spindle oiler, motors. Anon. *Silk & Rayon 20,* 1382-3 (Nov. 1946).

Some brief practical suggestions on maintenance. TTD: 8-47

Maintenance and modernization. Manual guides maintenance at Seminole Mills. Anon. *Textile Industries 111,* No. 2, 107, 109, 111 (Feb. 1947).

The maintenance at the Seminole spun rayon plant is guided by a manual that contains schedules of maintenance as well as other information. A condensed version is given as an example. The modernization of the plant and machinery is discussed also. TTD: 8-47

Mill construction. Modern mill building features control of air. Anon. *Textile World 97,* No. 2, 120-1 (Feb. 1947).

The new Chicopee Mfg. Corp's plant at Cornelia, Ga. is a single-story, modern design, steel-frame building on a concrete foundation. A central-station air conditioning system that changes the air 14 times per hour is one of the main features. The windows are double-glazed and vacuum insulated. TTD: 8-47

Mill maintenance. Proximity, White Oak and Revolution. Anon. *Textile Industries 111,* No. 2, 115, 119 (Feb. 1947).

A brief report on maintenance of equipment. TTD: 8-47

Mill maintenance. Wiscassett Mills Company. Anon. *Textile Industries 111,* No. 2, 131, 135 (Feb. 1947).

Fiber processing machinery, as carding, picking, spinning, dyeing and the like, are discussed in relation to maintenance. TTD: 8-47

Mill maintenance. Scheduled maintenance for dyeing, bleaching, and finishing. W. R. Wands, Erwin Cotton Mills Co. *Textile Industries 111,* No. 2, 98, 100, 102, 104, 154-6 (Feb. 1947).

Dyeing, bleaching, and finishing machinery is subjected to high speeds, moisture, chemicals, and the like; therefore, regular and proper maintenance is of utmost importance. TTD: 8-47

Mill modernization. Clover Spinning Mills. Anon. *Textile Industries 111,* No. 2, 141 (Feb. 1947).

A brief report on new pickers, combers, and winding machines. TTD: 8-47

Mill modernization. Mooresville Mills. Anon. *Textile Industries 111,* No. 2, 135, 137 (Feb. 1947).

Modernization of slashing, raw stock dyeing, air conditioning and humidification, overhead cleaning in spinning, materials handling, and beam and piece dyeing are briefly reviewed TTD: 8-47

Mills. Joanna Textile Mills Co.—a story of progress.

David Clark. *Textile Bull. 71,* No. 4, 27-8, 30, 32 (Oct. 15, 1946).

A report on the layout, air conditioning, etc. of a mill. TTD: 8-47

Modernization. Dart Mill modernization. Anon. *Textile Weekly 38,* 978, 980, 982 (Nov. 22, 1946).

The modernization of a cotton mill is described. Conversion to electric drive, modern fluorescent lighting and painting are among some of the main features of the modernization. TTD: 8-47

Modernization. Oldham Twist Co., Ltd. Anon. *Textile Weekly 38,* 1032, 1034 (Nov. 29, 1946).

A description of the modernization of a cotton mill. TTD: 8-47

Modernization. Wool industry modernization. Anon. *Textile Weekly 38,* 1142, 1144 (Dec. 13, 1946).

A discussion of the modernization of a woolen mill (Thornton Spinning Co., England). TTD: 8-47

Modernization and maintenance. Monarch Mills. Anon. *Textile Industries 111,* No. 2, 123, 127, 131 (Feb. 1947).

The modernization and maintenance program at the Monarch Mills is discussed. TTD: 8-47

Modernization and maintenance. Modernization and maintenance in knitting mills. Will Sage. *Textile Industries 111,* No. 2, 195-6, 198, 200, 202, 205-6 (Feb. 1947).

Because of abuse given knitting machinery during the war, modernization and maintenance are highly important. Lighting, fire equipment, temperature control, fixer's equipment, and power transmission are among some of the subjects discussed. TTD: 8-47

Power. Power transmission. Thos. Hall, J. H. Fenner & Co., Ltd. *Textile Weekly 38,* 1130, 1132, 1134, 1136 (Dec. 13, 1946).

Individual and group drives are discussed and compared. TTD: 8-47

Steam turbines. Centrifugal oil purifiers. Anon. *Textile Weekly 38,* 696, 698 (Oct. 11, 1946).

Centrifugal oil purifiers, which are being installed on steam turbines, are discussed. By means of these purifiers the lubricating oil in a turbine may be maintained in good condition. TTD: 8-47

Woolen mill maintenance. Chatham's maintenance department staffed for over-all service. Anon. *Textile Industries 111,* No. 2, 88-92 (Feb. 1947).

Mill maintenance at the Chatham Mfg. Co. is carried on

by a central maintenance department, composed of separate service divisions as the machine shop, electrical division, etc., and divisions for each manufacturing department. TTD: 8-47

Lighting and air — X 2

Air conditioning. Air conditioning. C. W. Ward, Atmospheric Control, Ltd. *Textile Weekly 38,* 988, 990, 992, 1042, 1044, 1046 (Nov. 22, 29, 1946).

Air conditioning is discussed with emphasis on controlled recirculation and its relationship to dust and fly control. TTD: 8-47

Atmospheric control. Air conditioning in textile mills. IV. E. Howlett. *Textile Mfr. 72,* 638-41 (Dec. 1946).

Equipment for air conditioning should be capable of controlling temperature, relative humidity, air movement and purity. Installations to meet these requirements are described with some details of unit dust separators, unit type heaters, and the like, given. TTD: 8-47

Card-room cleaner. A report on automatic card room cleaning. E. F. Kulp, Am. Monorail Co. *Textile Bull. 71,* No. 7, 18, 20, 22 (Dec. 1, 1946).

A discussion of overhead cleaning of card rooms. TTD: 8-47

Fluorescent lighting. Fluorescent lighting. Wm. H. Kahler, Westinghouse Electric Corp. *Textile Forum 4,* No. 1, 7-9, 20-1 (Spring, 1947).

The advantages of fluorescent light for textile plants are discussed. The brightness of the fluorescent lamp is less than that of the filament lamp, but this does not mean that a bare fluorescent lamp will not cause glare. Such lamps must be well shielded by reflectors, louvers, or some diffusing media. The fluorescent tubes should be mounted at right angles to long opaque objects such as spinning frames, carding and combing machinery, and to the fronts of the looms. The white fluorescent lamp is the most efficient for general lighting, but daylight fluorescent lamps should be used for color matching. Red or brown materials do not appear to be exactly the same color under fluorescent as under natural light, but the difference is usually slight. TTD: 8-47

Wastes — X 3

Card-fly separator. Card-fly separator, given practical tests in plants, makes possible recovery of spinnable fiber from waste. Anon. *Textile Bull. 71,* No. 5, 20-1 (Nov. 1, 1946).

An illustrated description of a card-fly separator which will reclaim cotton waste. TTD: 8-47

Stream sanitation. Influence of wastes on treatment and use of water. Chas. F. Hauck. *Chem. Eng. Progress 43,* 481-6 (Sept. 1947).

The magnitude and effects of industrial wastes are discussed. Treating methods are not discussed.
LCL TTD: 8-47

Hazards; operations; efficiency — X 4

Accident prevention. South Carolina S. T. A. devotes fall meeting to study of plant safety. Anon. *Textile Bull. 71,* No. 4, 37-8, 40, 42, 44, 46-7, 73-9 (Oct. 15, 1946).

Reports on plant safety programs are given (*Cf.* TTD: *4,* 98). TTD: 8-47

Color in industry. Paint in industry. Anon. *Textile Weekly 38,* 700, 702 (Oct. 11, 1946).

The psychological effect on workers of the use of paint on machinery in mills is briefly discussed. TTD: 8-47

Dermatitis. Dermatitis in war and peace. Gordon C. Harrold. *Safety Eng. 90,* No. 3, 78-81 (Sept. 1945).

Causes of dermatitis and protective measures to be taken against it are discussed. Irritants causing dermatitis and the industries most affected (including the textile industry) are listed. TTD: 8-47

Electrical hazards. Earth leakage protection and tests. Anon. *Textile Mfr. 72,* 653-5 (Dec. 1946).

Inefficient earthing conductors may result in fire or shock from an electrical insulation. Earthing systems and testing of an earthing circuit are discussed. TTD: 8-47

Materials handling. Automatic sorting of textile goods. Anon. *Textile Weekly 38,* 654, 656 (Oct. 4, 1946).

An automatic electronic control system sorts goods according to the nature of the color of the material. The principal items of this system are an oscilloscope, phototube, amplifier, and selecting mechanism. TTD: 8-47

Materials handling. Materials handling equipment. V. G. Brookshire, Engineering Sales Co. *Textile Bull. 71,* No. 7, 22, 25, 46-7 (Dec. 1, 1946).

Mechanized materials handling reduces costs and increases production and quality. A review of some problems and means of handling them is given. TTD: 8-47

Materials handling. Better handling methods offer large savings. W. B. McGuire, Werner Textile Consultants, Inc. *Textile World 97,* No. 2, 117, 210, 212, 214, 216, 218, 220 (Feb. 1947).

A mechanical system for handling cotton bales, an over-

head picker-lap system, and an overhead system for handling beams are described in detail with the aid of diagrams. These systems with other material handling devices greatly reduce cost and time in processes, as well as improve the quality of the finished product.
TTD: 8-47

Mill efficiency. Woolen-mill efficiency raised by spare hands. Gustav Zellnik, Textile World. *Textile World 97,* No. 2, 141 (Feb. 1947).

The practice of having spare hands in certain departments, as the card room, will eliminate production loss due to absent workers. The cost of these spare hands would be offset by the increased efficiency attained by steady production. TTD: 8-47

Noise reduction. Noise reduction in textile industry. Anon. *Silk & Rayon 21,* 271 (Feb. 1947).

Excessive noise in mills can cause deafness, fatigue, errors, nervous strain, and irritability. It is therefore of utmost importance to keep all noises down to a minimum. This may be accomplished by elimination of noise at its source, isolation of noisy operations, insulation, and the use of personal protective devices. TTD: 8-47

Time study. Time study in textiles. H. Walker. *Textile Weekly 38,* 828, 830, 832, 928, 930 (Nov. 1, 15, 1946).

The details of time study as applied to winding and doubling are discussed. The same methods may be made applicable to any type of machine or operation.
TTD: 8-47

REPORT ON DEFECTIVE COLOR VISION IN INDUSTRY. Committee of the Color Group of the Physical Society. Physical Society, 1 Lowther Gardens, Prince Consort Road, London, S. W. 7; 52 pp.; price 3s 6d.

Reviewed in *Silk & Rayon 21,* 274, 276 (Feb. 1947).
TTD: 8-47

BASIC SCIENCES XI

Alkali cellulose. Long-chain distribution of air- and chemically-ripened alkali cellulose. H. A. Wannow. *Kolloid-Z. 108,* Nos. 2 & 3, 103-13 (1944); *in German.*

Sodium cellulose was synthesized by 2 methods of the same rate of polymerization: (1) ripening by oxygen of the air, and (2) chemical ripening with H_2O_2. Viscometric and osmometric molecular weight determinations showed that no essential differences existed in the polymolecular structure of the air- and chemically-ripened cellulose. TTD: 8-47

Alkali cellulose ripening. Ripening of alkali cellulose. K. Lauer, R. Hansen & E. Franke. *Kolloid-Z. 108,* Nos. 2 & 3, 113-20 (1944); *in German.*

Research on the kinetic reaction in the ripening process has shown that the reaction velocity decreases asymptotically. Lower molecular by-products must be the cause of the slowing up of the process. The kinetic energy was determined for a group of celluloses and was found to be consistently around 13,340 cal. The phenomenon which is expressed in collision constants must be responsible for the differences established in the ripening velocity of the various celluloses. Some decarboxylation occurred. TTD: 8-47

Cellulose. Carbohydrates. XVI. Super-molecular constitution of cellulose—IV. Th. Lieser & Max Haedicke. *Kolloid-Z. 108,* Nos. 2 & 3, 125-31 (1944); *in German.*

The difficulties encountered in determining the molecular structure of addition products of cellulose with inorganic acids and bases are discussed and methods of previous investigators described. TTD: 8-47

Cellulose fibers. Periodic precipitation in native and regenerated cellulose fibers. G. Schramm. *Kolloid-Z. 108,* Nos. 2 & 3, 166-9 (1944); *in German.*

Periodic precipitation in cellulose fibers was studied in order to determine the difference between native cotton and regenerated cellulose fibers. Precipitates were prepared by treating the fibers until KI and $AgNO_3$, and Liesegang rings were formed. The precipitates of 3 different viscose fibers and of Egyption cotton were observed under the microscope and some differences were found. In general, however, their behavior was similar to that of other gels which form Liesegang rings.
TTD: 8-47

Cellulose hydrate. Concerning a "rubber effect" in cellulose hydrate. O. Kratky & A. Sekora. *Kolloid-Z. 108,* Nos. 2 & 3, 169-76 (1944); *in German.*

Cellulose fibers were subjected to stretching, shrinking and a combination of both. A careful determination of the amount of crystalline portion during the course of the process showed that no change occurred within limits of error of $\pm$ 10%, and that a "rubber effect" (that is, crystallization during stretching) did not take place. The röntgenographic method for the determination of the crystalline portion in substances having a fibrous structure is described. TTD: 8-47

Cellulose structure. Contribution to structure of cellulose. I. E. Schiebold. *Kolloid-Z. 108,* Nos. 2 & 3, 248-65 (1944); *in German.*

A comprehensive review is given of all former proposals for the structure of cellulose in which it is chemically

considered as a sugar derivative. The structural models of Sponsler and Dore, Haworth, Myer and Mark, Andress, Sauter, and Meyer and Misch are criticized. Ninety-seven references. TTD: 8-47

Cellulose xanthate. Contribution to reaction mechanism of Na-Cell-I with carbon disulfide. K. Ph. Jung. *Kolloid-Z. 108,* Nos. 2 & 3, 120-5 (1944); *in German.*

The reaction mechanism and kinetics of this method for the preparation of cellulose xanthates were studied. It was shown that the reaction of CS_2 with Na-Cell-I (cellulose treated with 12-20% aqueous NaOH) occurs in such a way that the CS_2 is dissolved in the NaOH. The reactivity of the Na-Cell-I is independent of the degree of polymerization, the method of preparation, and the source of the starting materials. On the other hand, the solubilities of the sulfide products show marked differences which can be traced to those very same factors. TTD: 8-47

Chemistry of cellulose. Contribution to chemistry of cellulose. A. Marschall & H. Stauch. *Kolloid-Z. 108,* Nos. 2 & 3, 131-7 (1944); *in German.*

Treatment of natural cellulose with a formic acid-zinc chloride solution changes its fiber structure and makes it more reactive. It is more soluble and is more easily xanthogenized and acetylized. TTD: 8-47

Keratin. Effect of formamid on keratin. E. Elod & H. Zahn. *Kolloid-Z. 108,* Nos. 2 & 3, 94-103 (1944); *in German.*

Treatment of keratinous substances, such as wool and horsehair, with formamid results in shrinkage and a weakening in the nitrogen linkage. TTD: 8-47

Long-chain molecules. Practical meaning of long-chain molecules. F. T. Pierce, N. C. State College, School of Textiles. *Textile Forum 3,* No. 4, 21-2, 24, 33-4, 41 (Winter, 1946).

The effect of structure on the properties of fibers is discussed. TTD: 8-47

Swelling process of gels. Gel structure of artificial fibers from regenerated cellulose. A. Matthes. *Kolloid-Z. 108,* Nos. 2 & 3, 79-94 (1944); *in German.*

The variable swelling rate of cellulose hydrate gave occasion for research on the swelling process of these gels by means of sorption isotherms. Sorption behavior was determined by studying the results of such physical reactions as adsorption, solution, and capillary condensation. TTD: 8-47

Viscosity measurement. Couette determination of viscosity. H. Erbring. *Kolloid-Z. 108,* Nos. 2 & 3, 152-5 (1944); *in German.*

The Couette apparatus for measuring viscosity is described in detail. TTD: 8-47

TEXTILE RESEARCH XII

Near East textiles. Arab and Jew textile industries in Near East. Eric Hardy. *Silk & Rayon 20,* 1508, 1510 (Dec. 1946).

Textile industries in Palestine are discussed, comparing the Arabian and Jewish mills and exports. TTD: 8-47

Research. Cooperation in research. J. E. Lynn & L. A. Fluck, Am. Cyanamid Co. *Textile Forum 3,* No. 4, 7-11, 28-9 (Winter, 1946).

The organization and the operation of the central laboratories of the Am. Cyanamid Co. are described. The Textile Chemicals Section is working on shrinkage control, fire retardancy, crease resistance, wearability, color and light fastness, water repellency, grease and stain resistance, good drape, snag and run resistance, correct handle, mildew and insect resistance, and many other specialized projects. Routine tests on textiles are run by the Physical Testing Section of the Physics Dept. in air-conditioned laboratories. TTD: 8-47

Textile production. Textile production on rise all over world. Anon. *Textile World 97,* No. 2, 106-9, 224, 226 (Feb. 1947).

Textile production, plans, and prospects in 15 foreign nations are discussed in general. TTD: 8-47

Textile research. Textiles show power to reach new heights. Wm. B. Dall, Textile World. *Textile World 97,* No. 2, 101 (Feb. 1947).

Production achievements in 1946 and the trend toward greater production are reviewed. TTD: 8-47

Textile research. Washington relationships with textiles have been simplified. John Hightower, McGraw-Hill. *Textile World 97,* No. 2, 110 (Feb. 1947).

Reduction in government controls, foreign trade, labor supply, and machinery exports are reviewed. TTD: 8-47

Textile research. Research promises noteworthy future for textiles. Julian F. Smith, Inst. of Textile Technology. *Textile World 97,* No. 2, 111-12 (Feb. 1947).

A review of the developments in the textile field and the trend of future research. TTD: 8-47

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